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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/540,816  
Filing Date: June 24, 2005  
Appellant(s): TAMURA, SEIKI

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David M. LaPrairie  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 12/21/2009 appealing from the Office action mailed 9/17/2009.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is deficient. 37 CFR 41.37(c)(1)(v) requires the summary of claimed subject matter to include: (1) a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number, and to the drawing, if any, by reference characters and (2) for each independent claim involved in the appeal and for each dependent claim argued separately, every means plus function and step plus function as permitted by 35 U.S.C. 112, sixth paragraph, must be identified and the structure, material, or acts described in the specification as corresponding to each claimed function must be set forth with reference to the specification by page and line number, and to the drawing, if any, by reference

characters. The brief is deficient because the support for the block copolymer A and block copolymer B is present in the composition within the range of 0.01 to 10% mass % (per total weight of the composition of reference is incorrect). While the support for block copolymer B is correct (i.e. paragraph 80), Paragraph 22 refers to an entirely different polymer (i.e. silicone compound C) which comprises an amine group. Thus, Appellant has not provided support for block copolymer A. It should be noted that the instant specification provides support for block copolymer A at paragraph 63.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: Appellant alleges that the rejection of claim 1 is over US Patent No. 6,287,891 to Rautschek. This is incorrect. The art of record is US Patent No. 6,187,891 to Rautschek.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 1 remains/is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,187,891 (Rautschek, 2001).

Rautschek teaches block copolymer A. Rautschek's copolymer has a generic formula,  $A(BC)_nBA$  (Formula I; column 2, lines 40-65). Rautschek's copolymer has a generic formula, IV (Col.2 line 50) subunit A is taught to be that of formula II, (Col. 2, line 55). The "b" and "c" integers of the "A" subunit may be 0 as taught by the embodiments in Table 1 (Col's 9 and 10, See example H5/CP5, H1/CP1, H2/CP2, H13/CP13), thus subunit A reads on Appellant's elected species for  $R^2$ . The  $(BC)_n$  block of Rautschek corresponds to Appellant's "c" block. Rautschek's "B" subunit (Formula III; Col. 2, line 65) corresponds to Appellant's polyorganosiloxane block. The "d" integer may be between 1 to 100, reading on Appellant's "a" integer. Rautschek's subunit "C" reads on the remaining portion of Appellant's "c" block, with Rautschek's "b"

and "c" integer being zero (Formula IV, Col. 3 line 5; Table 1 Col's 9 and 10 for specific embodiment see example H5/CP5). Subunit "B" is reads on Appellant's polyorganosiloxane. Subunit A, with "b" and "c" integers being zero, read on R<sup>2</sup>. With regard to the average molecular weight of the polyorganosiloxane block, Rautschek teaches the R<sup>3</sup> substituents (corresponding to Appellant's R<sup>1</sup> substituents) may be any number of substituted or unsubstituted, saturated, and/or unsaturated hydrocarbon radicals from 1 to 20 carbon atoms (Col. 2 lines 60 to end; top of Col.3) and d is permitted to repeat up to 400 times (Col. 3, lines 1-15) thus the molecular weight may be at least 192,000 depending on the selection of substituents and integers. Alkyl radicals are the preferred radicals for R<sup>3</sup> in Rautschek's composition (column 3, lines 40-60). With regard to the polyorganosiloxane block constituting 50-99% of the mass of block copolymer A. Rautschek teaches that the "d" integer may repeat up to 400 times (Col. 3, lines 1-15), while the BC subunit is taught to be greater than 1 but should be chosen depending on the subsequent intended use (Col. 4 lines 25-30). Thus it is obvious to optimize the mass of the polyorganosiloxane block to the mass of the copolymer based upon use of the polymer. With regard to the polyoxyalkylene block, "a" may be up to 200 thus the molecular weight is 8,800 and is within the range of 130 to 10,000. With regard to the average molecular weight of the block, this may be optimized by selection of substituents, the number of times d integer repeats and the selection of duplication of BC subunit based upon the intended of the copolymer. Rautschek further teaches that the weight ratios of a to b to c may change depending on the desired copolymer (Col.5, lines 60-end). Rautschek also teaches that the

molecular weight of copolymers may be easily controlled by controlling the size of "n" and the ratio of (a) to (b) to (c) (Col. 6 lines 1-20). Viscosity and molecular weight also increase with increasing values of "n" (Col. 6 lines 1-20). Rautschek teaches that molecular weight, via the size of n, may be set to necessary requirements (Col. 6 lines 1-20).

With regard to copolymer B, Rautschek also teaches the recited block copolymer B [Col.2 line 50; A(BC)<sub>n</sub>BA Formula I]. Generic formula I teaches that subunit A is that of formula II, (Col. 2, line 55) The "c" integer of the "A" subunit may be 0 (see Table 1, Col 9-10, Example H7/CP7 which embodies integers a and b while omitting integer c (Formula IV, Col. 3 line 5; Table 1 Col's 9 and 10 for specific embodiment see example H7/CP7), and thus subunit A reads on Appellant's elected species for R<sup>4</sup>. The (BC)<sub>n</sub> block of Rautschek corresponds to Appellant's "c" block. Rautschek's "B" subunit (Formula III; Col. 2, line 65) corresponds to Appellant's polyorganosiloxane block. The "d" integer may be between 1-100, reading on Appellant's "a" integer. Rautschek's subunit "C" reads on the remaining portion of applicants' "c" block. With regard to the average molecular weight of the polyorganosiloxane block, Rautschek teaches the R<sup>3</sup> substituents (corresponding to applicants' R<sup>3</sup> substituents) may be any number of substituted or unsubstituted, saturated, and/or unsaturated hydrocarbon radicals from 1 to 20 carbon atoms (Col. 2 lines 60 to end; top of Col.3 ) and d is permitted to repeat up to 400 times (Col. 3, lines 1-15) while "n" may preferably repeat to 1 to 20 times (column 2, lines 40-60). Thus the molecular weight may be at least 132-593,160 depending on the selection of substituents and integers. Alkyl radicals are the preferred radicals for

R<sup>3</sup> in Rautschek's composition (column 3, lines 40-60) and the calculation was performed with the preferred group of methyl for R<sup>3</sup> based upon the preferred teachings that the polypolyorganosiloxane that was used to make a comparison copolymer for CP1 (column 1, lines 55-65). With regard to the polyorganosiloxane block constituting 0.7-97.5% of the mass of block copolymer A, Rautschek teaches that the "d" integer may repeat up to 400 times (Col. 3, lines 1-15), while the BC subunit is taught to be greater than 1 but should be chosen depending on the subsequent intended use (Col. 4 lines 25-30) but is preferably repeats 1 to 20 times (column 2, lines 40-60). Thus it is obvious to optimize the mass of the polyorganosiloxane block to the mass of the copolymer based upon use of the polymer. With regard to the polyoxyalkylene block, "a" and "b" may repeat up to 200 times each may thus the molecular weight is 102-20,400 and reads on the range of 130 to 10,000. With regard to the average molecular weight of the block, this may be optimized by selection of substituents, the number of times d integer repeats and the selection of duplication of BC subunit based upon intended use of the copolymer. As discussed supra, Rautschek further teaches that the weight ratios of a to b to c may change depending on the desired copolymer (Col.5, lines 60-end). Rautschek also teaches that the molecular weight of copolymers may be easily controlled by controlling the size of "n" and the ratio of (a) to (b) to (c) (Col. 6 lines 1-20). Viscosity and molecular weight also increase with increasing values of "n" (Col. 6 lines 1-20). Rautschek teaches that molecular weight, via the size of n, may be set to necessary requirements (Col. 6 lines 1-20). Rautschek also teaches that informing the copolymer of the present invention, it is generally preferable to choose an equimolar

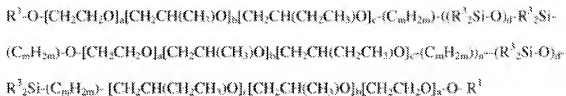


ratio of silicon bonded hydrogen atoms to alkylene groups, however the polyethers (a) and (c) are preferably supplied in excess, thus Rautschek appears to suggest that polyorganosiloxane block is present in 50% weight or less. Rautschek teaches use of the copolymers in an amount of 0.01-8% as foam stabilizers (column 6, lines 50-65) or from 0.1-95% if the copolymers are sold as ready to use (column 7, lines 15-30). Rautschek teaches that one or more polyetherpolysiloxane copolymers may be used as a foam stabilizer (claim 11, column 14, lines 40-50).

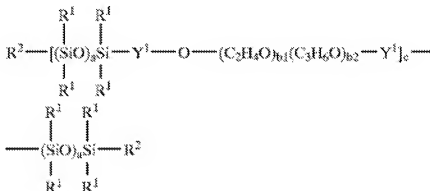
A person of ordinary skill in the art would have had a reasonable expectation of success in optimizing within the prior art conditions taught by Rautschek through routine experimentation within the parameters previously taught by Rautschek to yield the recited block copolymers A and B and using the block copolymers A and B together in a composition wherein each is present in a range from 0.01 to 10 mass% because Rautschek teaches each of moieties and the number of repeating units for each moiety for the block copolymer, weights, and preferred substituents, provides embodiments for some of the subunit blocks, and discloses that the copolymers are functionally equivalent and usable together as foam stabilizers with in an amount from 0.01-8%.

#### **(10) Response to Argument**

Appellant's alleges the examiner contends that the '891 patent discloses a chemical formula for block copolymer A when each of the respective subunits for general formula IV are replaced for "A" "B" and "C" (Appeal Brief, page 15, paragraph 1):

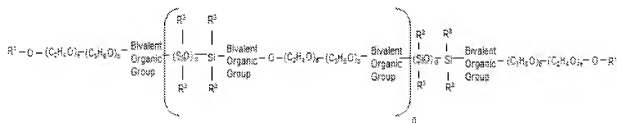


Appellant contrasts the alleged structure of the prior art to that of the instant claims (Appeal Brief, page 15, paragraph 1):

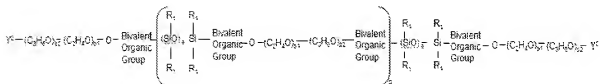


The Appellant's representation of the copolymer taught by the '891 application is in error. As discussed in the rejection above, the '891 prior art teaches and embodies exclusion of the  $[CH_2CH(CH_2CH_3)O]_c$  moiety from the polymer.

The teachings of the '891 prior art produces a copolymer with the following generic structure:



Notably, instant claim 1 of the instant application recites the following structure:

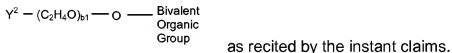
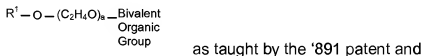


As discussed in the rejection above, the '891 prior art teaches the  $R^3$  substituents (corresponding to Appellant's  $R^1$  substituents for block copolymer A) may be any number of substituted or unsubstituted, saturated, and/or unsaturated hydrocarbon radicals from 1 to 20 carbon atoms. This teaching reads on the recited substituents of Appellant's  $R^1$  moieties. Specifically, the univalent hydrocarbon groups free of aliphatic unsaturation, hydroxyl groups, or alkoxy groups are taught.

The '891 prior art also teaches that  $R^1$  (corresponding to Appellant's  $Y^2$  moiety) may be independently either hydrogen, alkyl, aralkyl, or aryl (column 2, lines 50-55), thus the  $R^1$  moiety of the '891 prior art reads on Appellant's  $Y^2$  moiety. Specifically, the hydrogen atoms, and unsubstituted univalent hydrocarbon groups are taught by the prior art. Thus the structure taught by the prior art and that are recited by the instant claims are obvious.

With regard to Appellant's traverse of the A subunit being written in the opposite order as that of the recited claims for copolymer A (Appeal Brief, page 18, last paragraph; page 19, paragraphs 1 and 2), the question arises whether the structure taught by the prior art is an obvious variant of that recited by instant claim 1. Instant claim 1 requires that  $Y^1$  be a bivalent group. Notably, the  $C_mH_{2m}$  moiety taught by the '891 patent is also a bivalent group. The '891 patent teaches and embodies the "b" and

"c" moieties as being zero (Formula IV, Col. 3 line 5; Table 1 Col's 9 and 10 for specific embodiment see example H5/CP5). As discussed above, the R<sup>1</sup> moiety of the '891 patent teaches the Y<sup>2</sup> moiety recited by Appellant. Thus, the two structures to be compared in light of Appellant's species election are represented as:



Notably, the prior art and the instant claims both have a bivalent organic group, a C<sub>2</sub>H<sub>4</sub>O group, an oxygen and a terminal moiety. The difference in location of the oxygen group between two structures makes these two structures position isomers of each other. Due to the same chemical groups being present, position isomers have similar chemical properties and behavior. M.P.E.P. § 2144.08 states that chemists of ordinary skill recognize that homologs often have similar chemical properties and contemplate making homologs to try to obtain compounds with improved properties. While Appellant alleges that the difference in the location of the one oxygen atom between the two chemical structures is another distinguishing characteristic between claimed compound and that of the prior art (Appeal Brief, page 19, paragraph 3), Appellant fails to provide evidence as to how this distinguishing characteristic provides improved or unexpected results compared to the copolymer taught by the '891 patent.

With regard to copolymer B, the above scientific principles also apply. As discussed above, the '891 patent also teaches copolymer B. The rejection of copolymer B is addressed above.

Appellant alleges that that Examiner has picked and chosen from the potential infinite number of possibilities disclosed to arrive at the presently claimed copolymer A (Appeal Brief, page 16, paragraph 1; page 19, paragraph 4; page 20, paragraphs 1-2, page 21, paragraph 1). Appellant alleges that the moieties and substituents are not sufficiently limited or delimited or delineated to arrive at the claimed copolymer (A) (Appeal Brief, page 17, paragraph 1). Appellant further alleges that the fact that the claimed species or subgenus is encompassed by a prior art genus is not sufficient in itself to establish a prima facie case of obviousness. Appellant further alleges that the Examiner has not established a prima facie case of obviousness because a "lead compound" was not identified and then subsequently modified (page 26, paragraphs 3, and 4; page 27, paragraphs 1-3). Appellant alleges that the Examiner has not asserted any reason why one of ordinary skill in the art would pick and choose from the infinite number of possibilities (page 28, paragraph 3)

Appellants traverse has been considered but is not persuasive.

In response to Appellants' argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was

within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the Appellant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In the instant case, the '891 patent teaches the compounds of the instant invention may be foam stabilizers, emulsion stabilizers, and antifoams (column 6, lines 55-end). The '891 patent teaches that the copolymer comprises ethylene oxide moieties (i.e.  $C_2H_4O$  groups) (column 2, lines 50-60). The '891 patent teaches that propylene oxide (i.e.  $C_3H_6O$ ) and butylene oxide groups (i.e.  $C_4H_8O$ ) may be optionally excluded from the copolymer (column 2, lines 50-60). The '892 patent embodies the "b" and "c" integers of the "A" subunit being 0 as taught by the embodiments in Table 1 (Col's 9 and 10, See example H5/CP5, H1/CP1, H2/CP2, H13/CP13). The '891 provides an invitation to change the weight ratios of a to b to c depending on the desired copolymer and its use (Col.5, lines 60-end). Ethylene oxide moieties are added to compounds to increase their HLB and make them more water soluble. Alternatively, if one of ordinary skill in the art would have preferred that the copolymers be utilized in an antifoam oil where it would have been included with mineral oil, and silicone oils as taught by '891 patent (column 7, lines 1-10), the copolymer would need to be oil soluble. Thus, the artisan of ordinary skill would have included the oil soluble butylene oxide moiety in the copolymer. Thus, the selection of the ethylene oxide, propylene oxide, and butylene oxide moieties are based upon the intended use of the copolymers. With regard to the number of moieties to include in the copolymer, it is within the skill of an artisan to keep adding ethylene oxide monomers to the taught copolymer until it solubilizes in water.

Alternatively, it is within the skill of an artisan to keep adding lipophilic butylene oxide monomers to the copolymer until it solubilizes in oil. With regard to the polysiloxane units, these substituents were taught as described above. Their numbers may be changed to alter the molecular weight and viscosity with regard to its intended use (i.e. emulsifier, foam stabilizer or antifoam oil).

Appellant alleges that one of ordinary skill in the art would not have been at once able to envisage block copolymer A of the invention because the A moiety of the '891 patent only teaches the  $Y^1-O-(C_2H_4O)_{b_1}(C_3H_6O)_{b_2}-Y^2$  moiety of the Markush group for R2 (Appeal Brief, page 21, paragraph 2). Appellant further alleges that additional references are needed to disclose the  $Y^1-O-(C_2H_4O)_{b_1}(C_3H_6O)_{b_2}-Y^2$  moiety because the '891 application does not specifically disclose it (Appeal Brief, page 21, paragraph 2).

Appellant's traverse has been considered but is not persuasive.

Appellant's traverse is not commensurate with the scope of instant claim 1 or with their species election. The '892 teaches and embodies the elected  $R^2$  moiety. To meet the claim limitation with respect to the  $R^2$  moiety, only ONE moiety needs to be taught to meet that the limitation for that portion of instant claim 1. As discussed above, the H5/CP5 in polyether A teaches use of that  $R^2$  moiety (column 9, column 10).

Examples H1/CP1, H2/CP2, H13/CP13 for subunit A also read on Appellant's elected species for  $R^2$ .

Appellant alleges that the preferred range for the diorganosiloxane units of the '891 patent is less than the claimed 50-99 mass percent for the polyorganosiloxane block claimed by Appellant (page 23, paragraph 2).

Appellant's arguments have been considered but are not persuasive.

M.P.E.P. § 2123 states that nonpreferred and alternative embodiments constitute prior art. Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In the instant case, the '891 application teaches that the "d" integer may repeat up to 400 times (Col. 3, lines 1-15), while the BC subunit is taught to be greater than 1 but should be chosen depending on the subsequent intended use (Col. 4 lines 25-30). Thus it is obvious to optimize the mass of the polyorganosiloxane block to the mass of the copolymer based upon use of the polymer.

In the traversal of the rejection of claim 1 under 35 USC 103 (a) over the '891 patent, Appellant alleges that the intended use of the composition of the recited claims is for a hair treatment, while that of the instant claims relates to foams and foam stabilizers (Appeal Brief, page 25, paragraph 1; page 26, paragraphs 1 and 2; page 22, last paragraph; page 23, first paragraph). Appellant further alleges that the examiner has not set forth any reason why one of ordinary skill would predict that a foam stabilizer would have excellent properties in a composition for hair (Appeal Brief, page 25, paragraph 2; page 29, paragraph 2). Appellant alleges that the examiner should



make utilities disclosed for the genus of the prior art (Appeal Brief, page 25, last paragraph).

Appellant's arguments have been considered but are not persuasive.

In response to Appellant's arguments, the recitation "a composition for hair" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

With regard to Appellant's arguments as to why one of ordinary skill in the art would predict that that a foam stabilizer would have excellent properties in a composition for hair and Appellant's request for utilities for the genus taught by the prior art (Appeal Brief, page 25, paragraph 2), it is known that a variety of hair compositions utilize foams, in particular mousse and shampoo. Notably, hair mousses, shampoos, and conditioners are primarily emulsions. The '891 patent teaches use of the copolymers as foam stabilizers for use in polymer foams (column 6, lines 50-60). The '892 prior art also teaches the copolymers may act as emulsion stabilizers (column 6, lines 60-end). The copolymers may also be utilized as antifoam oils (column 6, lines 60-end). The '891 prior art also teaches particular preference for dilution of the copolymer antifoam emulsion with such solvents and propylene glycol, ethylene glycol,

petroleum, water, and cationic, nonionic, and anionic emulsifiers (column 7, lines 10-25). One of ordinary skill in the cosmetic arts would recognize these reagents are frequently included in hair cosmetics such as shampoos, conditioners, and hair mousses.

Appellant alleges that copolymer B is taught is similar to copolymer A except for the subscripts having a higher upper limitations not included in copolymer A (Appeal Brief, page 29, paragraph 3; page 30, paragraphs 1-5). Appellant alleges that copolymer B is nonobvious for the same reason that copolymer A is nonobvious (Reply, page 31, paragraph 2).

Appellant's traverse has been considered but is not persuasive.

For the reasons disclosed in the rejections above, copolymer B is taught by the '891 patent.

Appellant alleges that it is not obvious to utilize block copolymers A and B in the relative amounts, with the recited substituents, for a high composition (page 31, paragraphs 2-3; page 32, paragraphs 1 and 2).

Appellant's traverse has been considered but is not persuasive.

As discussed above, the substituents of the polymer and their amount is taught by the '891 patent. The '891 patent teaches use of the copolymers in an amount of 0.01-8% as foam stabilizers (column 6, lines 50-65) or from 0.1-95% if the copolymers are sold as ready to use (column 7, lines 15-30). The '891 patent teaches that one or more polyetherpolysiloxane copolymers may be used as a foam stabilizer (claim 11,

column 14, lines 40-50). Based upon the teachings of the '891 patent and general chemical principles, it would have been obvious to the artisan of ordinary skill to use the copolymers A and B together in a ready to use antifoam formula. The artisan of ordinary skill would have utilized the two copolymers together in order to provide a wide range of antifoaming against aqueous and oily solvents.

**(11) Related Proceeding(s) Appendix**

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/LORI MATTISON/

Examiner, Art Unit 1619

Conferees:

/Anne Marie Grunberg/

Supervisory Patent Examiner, Art Unit 1661

/YVONNE L. EYLER/

Supervisory Patent Examiner, Art Unit 1619